

PATENT Ser. No. 10/072,605

REMARKS

The Examiner's attention to the present application is noted with appreciation.

This preliminary amendment is offered to correct priority data and to offer additional claims to the invention.

Attached hereto is a marked-up version of the changes made to the specification and/or claims by the current amendment. The attached paper is captioned "Version with Markings to Show Changes Made."

Consideration and allowance are respectfully requested.

Respectfully submitted,

PEACOCK, MYERS & ADAMS, P.C.

By: 

Jeffrey D. Myers
Reg. No. 35,964
Direct Dial: (505) 998-1502

Attorney for Applicant
P.O. Box 26927
Albuquerque, New Mexico 87125-6927
Phone: (505) 998-1500
Fax: (505) 243-2542

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Customer No. 005179

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Version with Markings to Show Changes Made

In the Specification:

Please insert the following at the top of page 2:

—U.S. Patent Application Serial No. 10/066,960 filed on 30 January 2002 and entitled *Direct Write™ System* by Michael J. Renn;—

In the Claims:

Please add new claims as follows:

- 2. The apparatus of claim 1 additionally comprising means for sorting said plurality of discrete particles by size from smaller particles.
3. The apparatus of claim 2 wherein said sorting and collimation means comprise one or more virtual impactors.
4. The apparatus of claim 3 wherein said one or more virtual impactors carry said plurality of discrete particles after sorting.
5. The apparatus of claim 3 wherein two or more virtual impactors are placed in series.
6. The apparatus of claim 5 wherein one or more virtual impactors comprise nozzles leading to a virtual impactor later in series.

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7. The apparatus of claim 1 wherein said force application means comprises a carrier gas.
8. The apparatus of claim 7 wherein said force application means additionally comprises a laser.
9. The apparatus of claim 1 wherein said collimation means comprises means for entraining said plurality of particles in a sheath gas.
10. The apparatus of claim 9 wherein said entraining means comprises means for annularly surrounding said plurality of particles at an orifice of said collimation means.
11. A method of direct writing of a material, the method comprising the steps of:
 - supplying the material to be deposited;
 - atomizing the material to produce a plurality of discrete particles;
 - applying a force to propel the plurality of discrete particles generally toward a substrate;
 - collimating the plurality of discrete particles to control the direction of flight of the plurality of discrete particles; and
 - depositing the plurality of discrete particles on the substrate.
12. The method of claim 11 additionally comprising the step of sorting the plurality of discrete particles by size from smaller particles.

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13. The method of claim 12 wherein the sorting and collimating steps comprise employing one or more virtual impactors.
14. The method of claim 13 wherein the one or more virtual impactors carry the plurality of particles after sorting.
15. The method of claim 13 wherein two or more virtual impactors are placed in series.
16. The method of claim 15 wherein one or more virtual impactors comprise nozzles leading to a virtual impactor later in series.
17. The method of claim 11 wherein the applying step comprises employing a carrier gas.
18. The method of claim 17 wherein the applying step additionally comprises employing a laser.
19. The method of claim 11 wherein the collimating step comprises entraining the plurality of particles in a sheath gas.
20. The method of claim 19 wherein the entraining step comprises annularly surrounding the plurality of particles at an orifice employed in the collimating step.—